TRESBP ENVIRONMENTAL MONITORING SUMMARY DECEMBER 2014

OVERVIEW

In December, 2014:

- 22,772 m^3 of sand was pumped to Snapper Rocks East and 6,156 m^3 of sand pumped to Duranbah
- There was 1 media article relating to the project area. Detail is given in Section 3.
- Wave heights ranged from mostly calm to average seas (0.7 to 1.5 m) with moderate sea events on the 7th & 8th (up to 1.9 m), 12th to 14th (up to 2.5 m) and 28th (up to 2.2 m). There were no recorded storms. Wave directions varied mostly from ENE to ESE.
- 1612 vessel crossings were recorded for the month (this is about 20% less than the December) average.
- The estimated amount of sand moving north towards the Tweed River Entrance by natural processes was in the order of 38,000 m^3 (this is about 140% of the December average).

1. SAND PUMPING & DREDGING

Sand Delivery December 2014

Pumped:	28,928 m^3
Dredged:	0 m^3
Total:	28,928 m^3

The number of days sand was pumped this month = 15

Sand Delivery January to December 2014

Pumped:	465,501 m^3
Dredged:	0 m^3
Total:	465,501 m^3

Stage II Sand Delivery April 2000 to December 2014

Pumped:	7,550,383 m^3
Dredged:	2,061,972 m^3 *
Total:	9,612,355 m^3 *

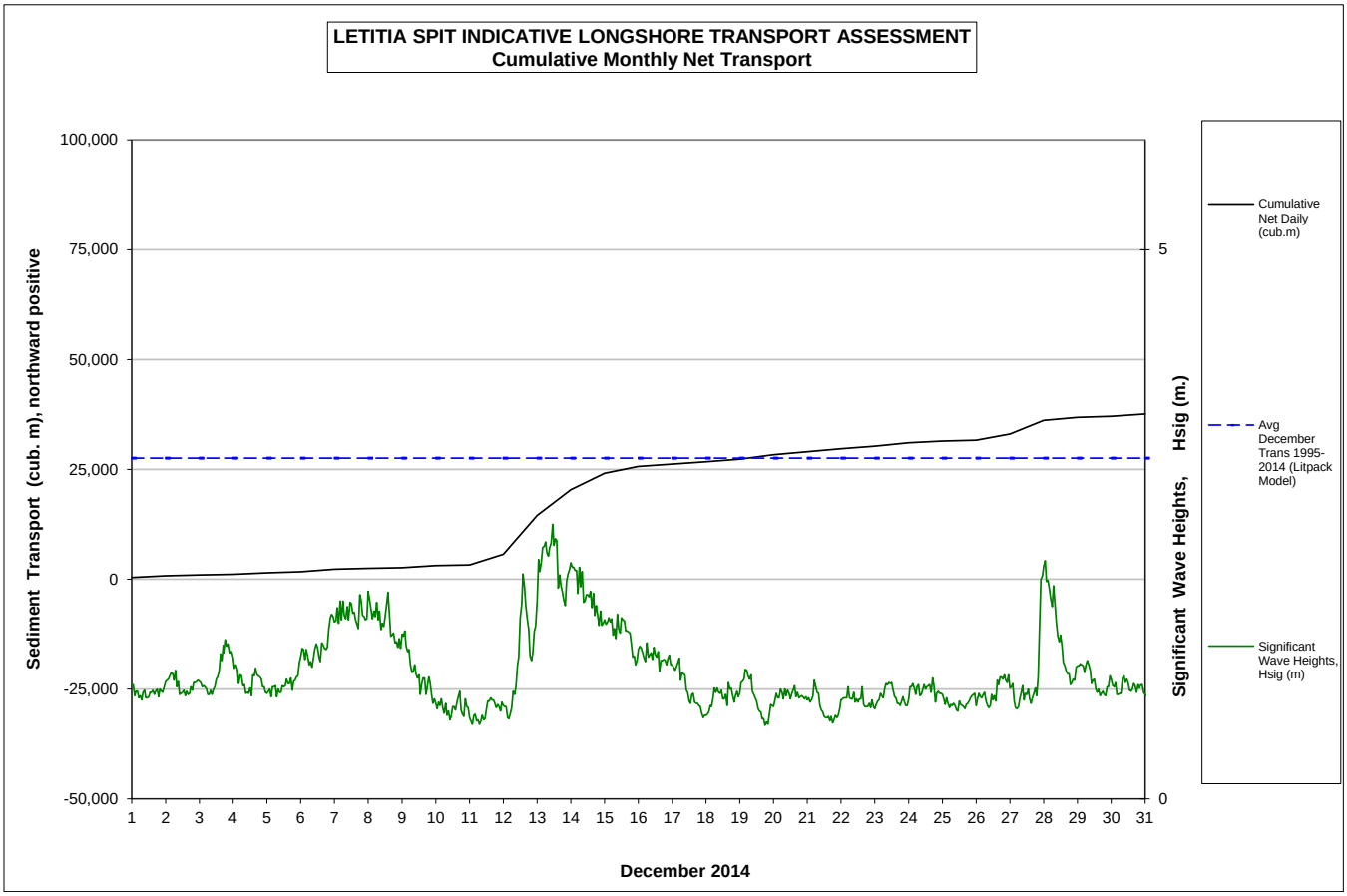
* This Includes 22,870 m^3 of sand delivered by dredge to Palm Beach between June and September 2005

2. INDICATIVE LONGSHORE TRANSPORT

The graph below is based on simplified sediment transport modelling and is indicative only.

In December 2014 the estimated natural sand transport moving North towards the Tweed River entrance was calculated to be in the order of 38,000 m^3.

This result is about 140% of the average estimated sand transport quantity of approximately 27,500 m^3 for the month of December.



3. MEDIA COVERAGE

Daily Telegraph published a media article on the 13th reporting that Tasman and Coral Sea swell conditions generated favourable surf conditions at the Snapper Rocks to draw hundreds of surfers to the popular surfing break.

4. TWEED RIVER ENTRANCE CONDITIONS

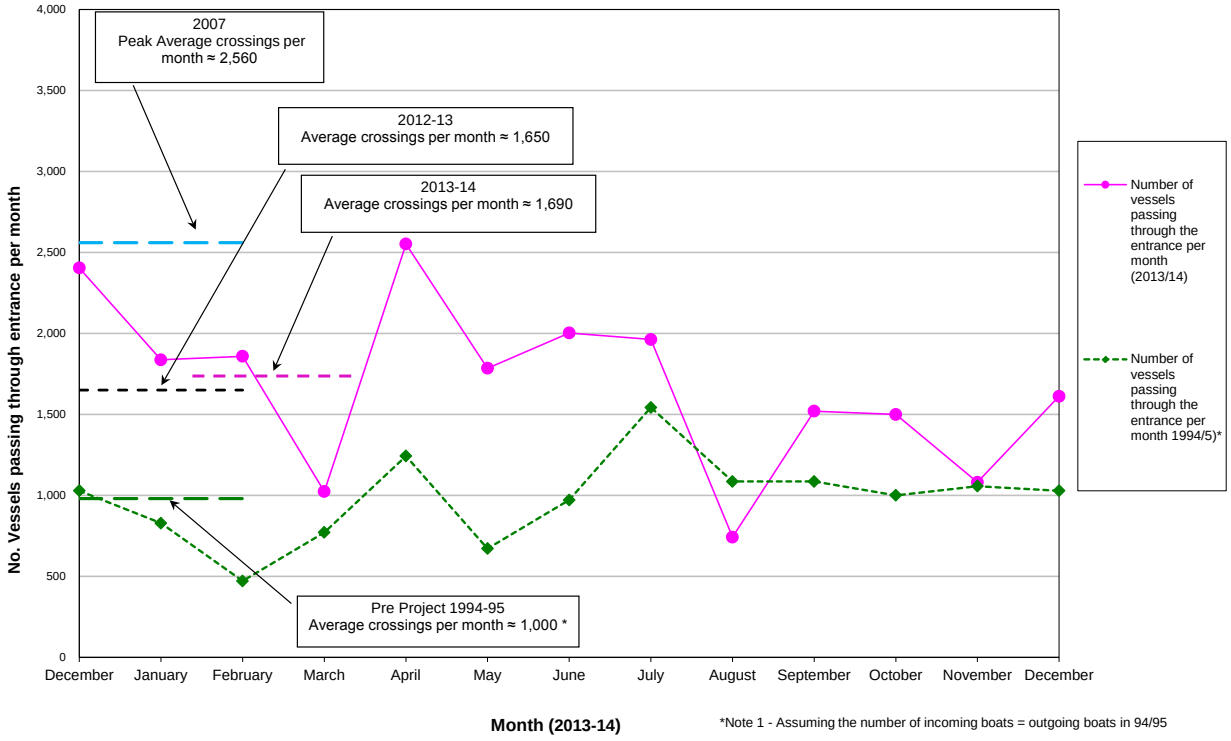
MARINE RESCUE NSW - MONITORING RESULTS

Weekends and public holidays

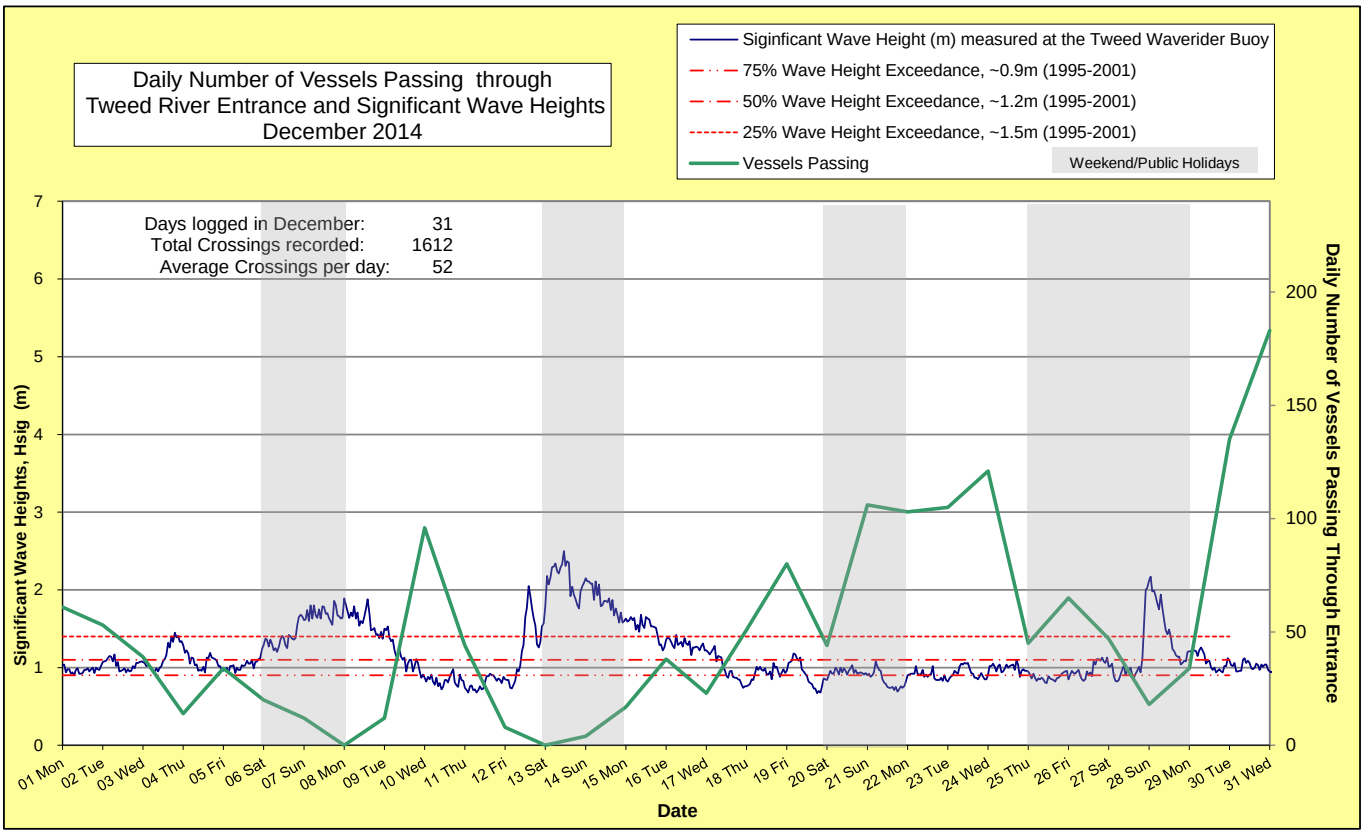
Date	Navigation Rating Impassable----------Good					Number of Boats
	Impassable (1)	Difficulty Encountered (2)	Some Difficulty Encountered (3)	Relatively Good Crossing (4)	Good Conditions (5)	
1st						61
2nd						53
3rd						39
4th						14
5th						34
6th						20
7th						12
8th						0
9th						12
10th						96
11th						44
12th						8
13th						0
14th						4
15th						17
16th						38
17th						23
18th						51
19th						80
20th						44
21st						106
22nd						103
23rd						105
24th						121
25th						45
26th						65
27th						47
28th						18
29th						34
30th						135
31st						183
					Total	**1612**

Source: *Marine Rescue NSW, Point Danger*

Comparison of the Number of Vessels Passing Through the Entrance per month
2013/14 compared to 2007 (peak crossings) and 1994/95 (prior to entrance improvements)



*Note 1 - Assuming the number of incoming boats = outgoing boats in 94/95



5. WAVE CONDITIONS

Wave Conditions over the month: Wave heights ranged from mostly calm to average seas (0.7 to 1.5 m) with moderate sea events on the 7th & 8th (up to 1.9 m), 12th to 14th (up to 2.5 m) and 28th (up to 2.2 m). There were no recorded storms. Wave directions varied mostly from ENE to ESE.

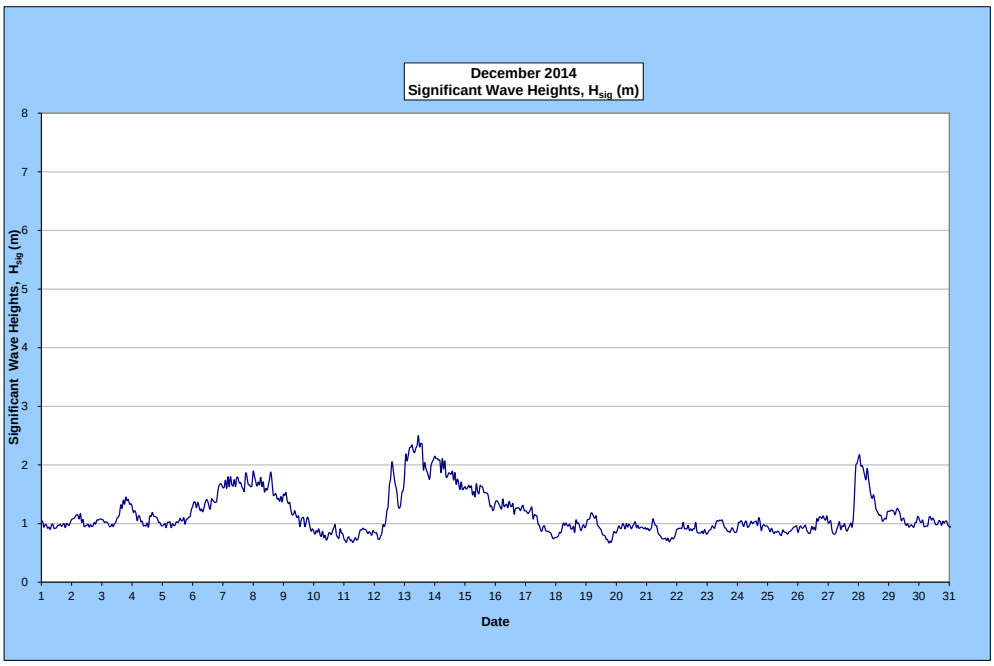
Monthly minimum significant wave height: 0.7 m on 19th December.
Monthly Maximum significant wave height: 2.5 m on 13th December.

Number of days on which waves were below 1.0 m: 22 days

Number of days on which waves were above 2.0 m: 3 days

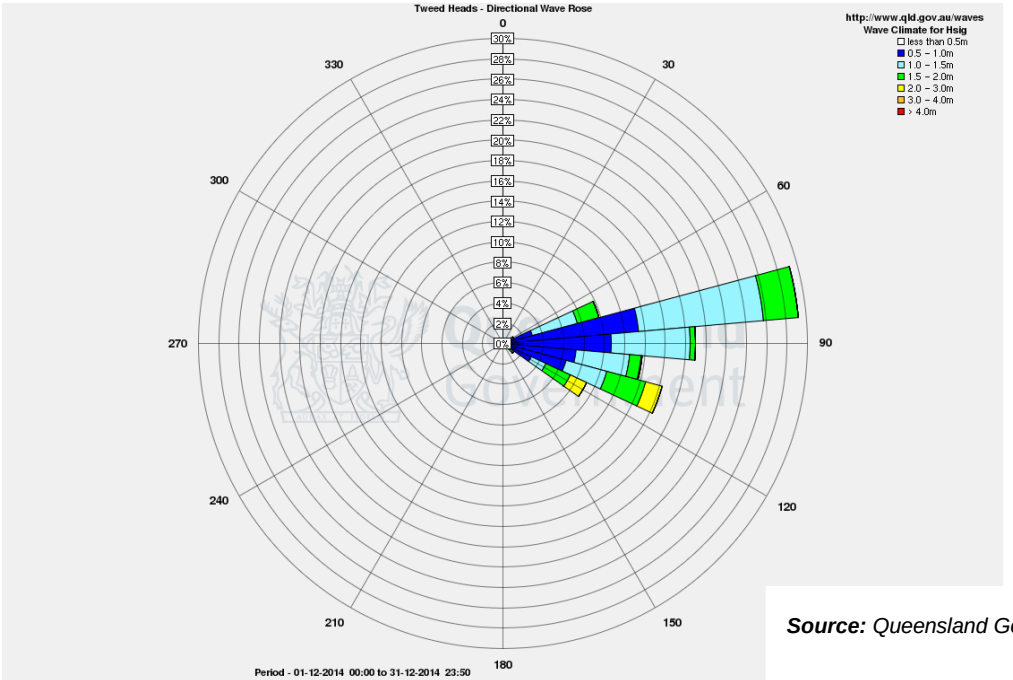
Note: Significant wave heights or H_{sig} is the average of the highest one third of recorded waves.

*(**Source:** Tweed & Brisbane Wave Buoy; Queensland Government)*



A link to data recorded by the Tweed Waverider Buoy is available at: http://www.qld.gov.au/waves

WAVE DIRECTION



***Source:** Queensland Government*